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(54) A chewable comestible product and process for its production.

(57) A chewable comestible product is disclosed which comprises a frappe component having a density of at least 1.0, and a syrup component including corn syrup and one or more of sugar, starch and water. An antacid is optionally included and may preferably be incorporated into the frappe component. A related process for producing the comestible product is also disclosed, which includes the processing of the product of the invention by cold processing techniques. In the instance where the product includes an antacid, metallic user aftertaste is absent.

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BACKGROUND OF THE INVENTIONField of the Invention:

The present invention relates to chewable edible products, and particularly to such products as may be prepared into candy,
5 or utilized as a base for the delivery of medicaments and the like.

Description of the Prior Art:

The present invention relates to the area of chewable comestibles having as part of their utility the ability to be prepared as confectionery products. The preparation of confectionery comestibles is historically well known and has changed
10 very little through the years. In this regard, confectionery items have been classified as either of the "hard" type, or of the soft variety. The present invention relates primarily to
15 this latter type of confection.

The preparation of soft confections such as nougat, involves the combination of two primary components thereof, namely a high boiling syrup such as corn syrup or the like, and a relatively light textured frappé, generally prepared from gelatin, egg albumen, milk proteins such as casein, and vegetable proteins such
20 as soy protein, and the like. The frappé is generally relatively light, and may, for example, range in density from about 0.5 to about 0.7.

By comparison, the high boiled syrup, or "bob syrup", is relatively viscous and possesses a higher density, and frequently
25 contains a substantial amount of sugar. Conventionally, the final nougat composition is prepared by the addition of the "bob syrup" to the frappé under agitation, to form the basic nougat mixture. Further ingredients such as flavorings, oils, additional sugar and the like may be added thereafter also under
30

agitation. A general discussion of the composition and preparation of nougat confections may be found in B.W. Minifie, CHOCOLATE, COCOA AND CONFECTIONERY: Science and Technology, 2nd Edition, AVI Publishing Co., Inc., Westport, Connecticut, (1980), at Pages 424-425.

Various confections have been considered for a variety of differing utilities, such as the development of products containing medicaments and other additives. Conventionally, hard candies have been utilized for such purposes, as they are, by their composition, easier and less expensive to process. By contrast, the soft candy or nougat possesses the shortcoming of being difficult to process except under conditions of elevated temperature, as the prepared product exhibits insufficient integrity at lower temperatures, to undergo the conventional processing utilized for hard candy. For this reason, the preparation of nougat has defied adaptation to the less expensive and more commercially desirable processing techniques utilized with hard candy.

One of the possible applications of confections is their employment as a vehicle for the delivery of medicaments. In particular, the preparation of antacid products in solid form for oral administration, has received wide attention. Specifically many of the products presently commercially available employ candy bases that are primarily of the hard candy variety that are nonetheless to be ingested by chewing. Most of these products, when placed in the mouth and chewed, however, cause a plating of the antacid over the mouth that results in the sensation of a chalky taste to the user. Efforts have therefore been directed to the development of chewable antacid products that either reduce or completely eliminate the chalky aftertaste.



It would therefore be desirable to develop a chewable confection, and a related method of preparation that would enable such confection to be processed in the same manner and with the same apparatus utilized for hard candy. It would also be desirable to develop a chewable confection that may serve as an effective base for the incorporation of medicaments such as antacids, that would substantially reduce or eliminate the chalky aftertaste experienced by the user when the product is chewed and swallowed.

SUMMARY OF THE INVENTION

10 The present invention relates to a chewable comestible product comprising from about 10% to about 35% by weight of a frappé component having a density of at least 1.0, and a syrup component including corn syrup, and at least one material selected from sugar, starch, water, and mixtures thereof present in an amount
15 constituting the remainder of the comestible product. The frappé component comprises the following ingredients, all present in amounts by weight of the frappé component:

- at least one whipping agent, in an amount of from 1.0% to 12%;
- 20 corn syrup in an amount of up to about 92%;
- sugar in an amount of up to about 55%;
- water in an amount of from 4% to 45%.

The comestible product of the present invention may further include a material selected from colorants, flavorings, oils, preservatives, medicaments, and mixtures thereof. Preferably, the
25 present comestible product includes an antacid in an amount of up to about 20% by weight of the product. The antacid may be selected from the group consisting hydroxymagnesium aluminum sulfate, dialuminum sodium carbonate, calcium carbonate, sodium bicarbonate, aluminum hydroxide, magnesium hydroxide, magnesium carbonate, a co-dried gel of aluminum hydroxide and magnesium carbonate, and mixtures thereof. Preferably, the antacid comprises
30



the co-dried gel of aluminum hydroxide and magnesium carbonate.

5 The present invention also relates to a method for the preparation of the comestible product described above, which comprises preparing a frappé component including the ingredients stated above, adding thereto the syrup component under agitation and at an elevated temperature of at least 175°F, mixing the two components at a temperature of at least 170°F, cooling the resulting mixture and kneading same at a temperature of no higher than about 130°F, and forming the resulting mixture into the
10 final comestible product.

15 In the instance where the comestible product of the present invention contains an antacid, the antacid is fully dispersed in the frappé component and does not yield the chalky aftertaste when chewed and ingested. The incorporation of the antacid in particulate form with particles ranging up to about 1.5 microns in size, within the frappé results in a homogeneous mixture of the antacid and a full coating of the particles thereof, that averts the development of the chalkiness in the mouth.

20 A further feature of the present invention is that the method may be performed at lower temperatures, and, in particular, that the final forming of the comestible product may take place at temperatures and in machinery utilized for hard candy cold processing. The present compositions maintain their integrity through cold processing and do not present unwanted adhesion to the processing
25 machinery.

Accordingly, it is a principal object of the present invention to provide a chewable comestible product capable of forming a soft candy such as a nougat, which does not require final forming at elevated temperatures.



It is a yet further object of the present invention to provide a chewable comestible product as aforesaid, which includes a frappé component having a density in excess of 1.0.

5 It is a yet further object of the present invention to provide a chewable comestible product as aforesaid that is capable of holding an antacid compound, and delivering said antacid without imparting chalky aftertaste to the user.

10 It is a still further object of the present invention to provide a method for the preparation of a chewable comestible product which does not require final forming at elevated temperatures.

It is a further object of the present invention to provide a method as aforesaid which facilitates the full dispersion of an antacid therewithin by incorporating said antacid into the frappé component thereof.

15 Other objects and advantages will become apparent to those skilled in the art from a consideration of the ensuing description.

DETAILED DESCRIPTION

20 The present invention relates to a chewable comestible product capable of formulation into a nougat-type confection. The comestible product comprises a frappé component having a density of at least 1.0, and a syrup component including corn syrup, and at least one material selected from sugar, starch, water, and mixtures thereof. The syrup component is known in the art as the
25 "bob syrup" and is generally a conventional ingredient in the formation of nougats.



The frappé component of the present invention may comprise the following ingredients, expressed in percent by weight of the frappé component:

at least one whipping agent, in an amount of from 1.0% to 12%;

corn syrup in an amount of up to about 92%;

sugar in an amount of up to about 55%;

water in an amount of from about 4% to about 45%.

Suitable whipping agents may include egg albumen, gelatin, milk proteins or other milk derived compounds such as whey, and a casein derivative known as "Hyfoama", vegetable proteins such as soy derived compounds, and mixtures thereof.

The sugar component, while listed separately, actually includes corn syrup as a source thereof, and may be used in alternation therewith. In particular, corn syrup may be used alone, or a variety of sugars may be used in its place; namely, invert sugar, fine granular sugar, liquid sugar, and the like. The exact choice of the sugar component may vary with the texture and ultimate utility of the comestible product to be prepared.

The frappé, in addition to the foregoing materials, may also include other additives comprising materials such as colorants, flavorings, and various medicaments. A feature of the method of the present invention, discussed later herein, comprises the incorporation into the frappé of certain medicaments, with the result that the medicaments are uniformly and thoroughly dispersed therein, and a more palatable delivery system for the medicament is thus attained.

In one embodiment of the present invention the chewable comestible product contains, preferably in the frappé component, an antacid compound, so that the comestible product serves as a delivery vehicle therefor. Suitable antacid compounds that may be incorporated herein include hydroxymagnesium aluminum sulfate,



dialuminum sodium carbonate, calcium carbonate, sodium bicarbonate, magnesium carbonate, aluminum hydroxide, magnesium hydroxide, a co-dried gel of aluminum hydroxide and magnesium carbonate, and mixtures thereof. Preferably, the antacid compound comprises the co-dried gel of aluminum hydroxide and magnesium carbonate.

The antacid compounds are incorporated into the present comestible products in particulate form, with particle sizes ranging from about 1.0 to 1.5 microns. Commercially obtainable antacid is classified according to its particle size in the following manner; "heavy" calcium carbonate, for example, possesses a particle size of about 1.5 microns, while "extra light" calcium carbonate may possess a particle size of 1.0 microns. This standard may be utilized in assessing the desirable particle size for any of the aforementioned antacid compounds.

In the instance where the present comestible product contains the antacid compound, such compound is preferably formulated together with the frappé component, and the frappé component accordingly comprises the following ingredients, expressed in percent by weight of the frappé component:

whipping agent, in from 1.0% to about 9%;
corn syrup, up to about 80%;
sugar, up to about 40%;
water, from about 4% to about 25%;
antacid from about 30% to about 55%.

The syrup component of the present comestible product is generally prepared from corn syrup, and may include other materials, as noted above. The syrup component or "bob syrup" generally comprises substantially the remainder of the chewable comestible product, and preferably may range in amount from about 60% to about 85% by weight of the total product.



The corn syrup ingredient is generally present in the bob syrup in an amount by weight ranging from about 20% to about 55%, and preferably from about 25% to 50% by weight thereof. The corn syrup ingredient includes those corn syrups high in fructose, as well as other commercially available varieties thereof.

The sugar present in the bob syrup may be one of the varieties recited above with respect to the frappé component, and may be present in the bob syrup in an amount of from about 45% to about 80% by weight, and more preferably in an amount of from 45% to about 75% by weight.

A further component of the bob syrup comprises starch. While not mandatory, starch may be included, and starches useful in accordance herewith may comprise those known as the "thin" boiling types. The starch component, when present, is utilized in an amount by weight of the bob syrup, of up to about 7% by weight, and preferably from about 3% to about 4% by weight thereof.

The remainder of the bob syrup may comprise water, which may be present in an amount of up to about 13% by weight of the bob syrup.

In addition to the frappé component and the syrup component, the chewable comestible products of the present invention may include further additives utilized conventionally to prepare nougat products, as well as additional materials that are capable of being incorporated therein for specific applications. Thus, the present comestible products may include materials selected from pigments, colorants, oils, fats, preservatives, flavorings, and mixtures of these in varying amounts.

Those materials generally incorporated and desirable to aid in the final processing of the comestible products, include the fats, preservatives, colorants and flavorings. Suitable oils

and fats would include partially hydrogenated vegetable or animal fats, such as coconut oil, palm kernel oil, beef tallow, lard, and the like. These ingredients are generally utilized in amounts with respect to the comestible product of up to about 7.0% by weight, and preferably up to about 3.5% by weight of the final product.

In a preferred embodiment, the fats and oils component of the present invention may comprise palm kernel oil and glycerol monostearate. These materials are added to the mixture of the frappé component and the syrup component, frequently in combination with a preservative such as BHA or BHT, and an auxiliary sweetener, and the like.

The comestible products of the present invention may be prepared to offer a variety of chewing textures to suit particular applications. Thus, for example, the product when prepared with the ingredients disclosed above may provide an extended chew similar to taffy candy. If it is desired to prepare a product having a "shorter" chew, a graining promoter such as 6x sugar or the like may be added in small amounts, on the order of about 0.5% by weight of the total product. Naturally, the presence, amount and manner of addition of such graining promoter may vary within the skill of the art, within the scope of the present invention.

In the instance where auxiliary sweeteners are utilized, the present invention contemplates the inclusion of those sweeteners well known in the art, including both natural and artificial sweeteners. Thus, additional sweeteners may be chosen from the following non-limiting list: sugars such as sucrose, glucose (corn syrup), dextrose, invert sugar, fructose, and mixtures thereof; saccharine and its various salts such as the sodium or calcium salt; cyclamic acid and its various salts such as the sodium salt; the dipeptide sweeteners such as aspartame; dihydrochalcone; glycyrrhizin; Stevia rebaudiana (Stevioside); and sugar alcohols such as sorbitol, sorbitol syrup, mannitol, xylitol,

and the like. Also contemplated as an additional sweetener is the non-fermentable sugar substitute (hydrogenated starch hydrolysate) which is described in U.S. reissue patent 26,959. Also contemplated is the synthetic sweetener 3,6-dihydro-6-methyl-1,2,3-oxathiazin-4-one-2,2-dioxide particularly the potassium, sodium and calcium salts thereof as described in German Patent No. 2,001,017.7.

Suitable flavorings include both natural and artificial flavors, and mints such as peppermint, menthol, artificial vanilla, cinnamon, various fruit flavors, both individual and mixed, and the like are contemplated. The flavorings are generally utilized in amounts that will vary depending upon the individual flavor, and may, for example, range up to 1% by weight or higher.

The colorants useful in the present invention, include the pigments such as titanium dioxide, that are incorporated directly into the frappé and may be incorporated therein in amounts of up to about 1% by weight, and preferably up to about .6% by weight. Also, the colorants may include other dyes suitable for food, drug and cosmetic applications, and known as F.D. & C. dyes and lakes. The materials acceptable for the foregoing spectrum of use are preferably water-soluble, and include indigoid dye, known as F.D. & C. Blue No. 2, which is the disodium salt of 5,5'-indigotindisulfonic acid. Similarly, the dye known as F.D. & C. Green No. 1, comprises a triphenylmethane dye and is the monosodium salt of 4-[4-(Nethyl-p-sulfobenzylamino)diphenylmethylene]-[1-(N-ethyl-N-p-sulfoniumbenzyl)-Δ^{2,5}-cyclohexadienimine]. A full recitation of all F.D. & C. and D. & C. and their corresponding chemical structures may be found in the Kirk-Othmer Encyclopedia of Chemical Technology, at Volume 5, Pages 857-884, which text is accordingly incorporated herein by reference.

The method of the present invention comprises the preparation of the chewable comestible food product by a series of steps, of which the first is the preparation of the frappé component to a density of at least 1.0, thereafter preparing the syrup



component and slowly adding the syrup component to the frappé component under agitation and at a temperature of at least 175°F. The frappé component and the syrup component are thereafter mixed at a temperature of at least 170°F for a period of
5 time to form a uniform mixture, after which the mixture is cooled to a temperature no higher than about 130°F, and the thus cooled mixture is thereafter formed into the comestible product.

The first step, comprising the preparation of the frappé component, proceeds by the mixture with each of the ingredients
10 of the frappé component. In particular, the whipping agent is combined with a portion of the corn syrup or the sugar ingredient, whichever is utilized, and water, and is mixed for a period of time sufficient to form a hydrated mixture. Generally, these
15 materials are mixed by agitation or whipping with a whisk, for a period of time on the order of about 10 minutes, which has been found to be sufficient to permit the formation of the desired hydrated mixture.

Thereafter, the remainder of the corn syrup, sugar, if any, and
20 water is added to the above mixture. This last addition is initially brought to a temperature on the order of about 210°F after which it is added to the remaining mixture.

In the instance where the frappé is prepared to include a medicament such as an antacid, the remainder of the corn syrup or the
25 like and the medicament are added after the initial combination of the whipping agent, corn syrup, sugar and water. These ingredients are added alternately to the initial mixture until fully incorporated in the resulting frappé component.

The syrup component or "bob syrup" is prepared by initially mixing the starch, when included, with 1/2 of the total amount of water to be utilized in the syrup component. Upon the formation of this first mixture, the remainder of the ingredients of the syrup component, i.e. the corn syrup, sugar and the starch/water mixture, are charged into a pressure cooker and cooked for about 10 minutes to a temperature ranging from about 260°F to about 280°F, and then a vacuum of approximately 10 inches is applied. The vacuum is applied to assist in removing further moisture from the mixture.

Once the above steps are complete, the frappé component and the syrup component or "bob syrup" may be combined, usually by the addition to the frappé component of the syrup component with agitation. In the instance where a colorant as mentioned above is to be added to the comestible product, such colorant is preferably added to the frappé prior to its combination with the syrup component.

The syrup component is added to the frappé component gradually and with agitation. The addition of the syrup component may be conducted over a period on the order of about 7 minutes, and may take place at a temperature of at least 175°F, and preferably at a temperature ranging from about 195°F to about 200°F. Thereafter, the resulting mixture may be beaten at a greater speed and intensity until the temperature of the resulting mixture drops to about 190°F. At this point, any fats or oils to be added to the mixture may be liquified and added, and the mixture

may be beaten for a further period of time until the temperature thereof drops to about 180°F-185°F.

One of the features of the present comestible product is that it is capable of undergoing cold processing to form the final product, by techniques and in apparatus reserved for hard candy formulations. In accordance herewith, it has been found that cold processing may be successfully utilized when the mixture is agitated, as by beating for a period of at least 7 minutes following the addition of the fat or oil component. This additional agitation appears to impart improved integrity to the mass that facilitates continuous processing by such techniques without adhesion to apparatus, jamming or product disintegration.

The mixture is thereafter further beaten until the temperature thereof drops to just below 180°F, at which point any flavorings desired in the final product, may be added. This further mixture is agitated for an additional period of time and is thereafter cooled to about 170°F, at which point it is ready for removal from the mixer. It should be mentioned that the apparatus useful in accordance with the present invention comprises those cooking and mixing apparatus well known in the confectionery manufacturing arts, and therefore the selection of specific apparatus will be apparent to the artisan. In particular, the mixing steps described above are performed on a Hobart Mixer at a variety of mixing speeds, and the cooking of the syrup component may be performed in a Hansella Cooker. Further processing, including the mixing and kneading and ultimate forming of the final product, take place, respectively, on a cold table, a Ruffinatti Mixing Table, a conventional batch former, and an extruder-like device known as a Uniplast. All of the foregoing pieces of equipment are commercially available by the names designated above, and do not per se form a part of the present invention.



As mentioned, the mixture having cooled to about 170°F is thereafter further cooled and kneaded to a temperature of at least below 130°F. Specifically, the mixture is transferred to a cold table which is maintained at a temperature of about 70°F and is permitted to reside on the cold table until a "skin" forms thereon, and until the mixture drops in temperature to between 145°F to about 160°F. Thereafter, the mixture is transferred to a Ruffinatti Mixing Table, which may, for example, be maintained at a temperature of about 68°F. The table includes reciprocating arms with shovel-like ends to knead the mixture. The mixture remains on the Ruffinatti Mixing Table until the temperature thereof drops below 130°F, and preferably within a range of about 110°F to about 117°F. Generally, the residence time of the mixture on the Ruffinatti Mixing Table is on the order of about 10 to 15 minutes.

After the mixture has attained the aforementioned lower temperature, it is transferred to the extruder-like Uniplast, from which it is cold formed into a strand which is then run through the batch former to punch out discrete tablets or droplets of the final product. Naturally, a variety of final forming processes may be utilized, depending upon the shape and size of the final product as desired. The batch former performs the final shaping operation in a cold room held at a temperature of between 53 to 70°F.

One of the features of the present method is that these final forming operations may be performed with the present composition. That is, such final forming operations are those usually performed in the manufacture of hard candy, where the material is sufficiently cohesive and dense to permit extrusion and cutting to length to occur without fracture or disintegration of the batch.



The comestible product and associated method of the present invention will be better illustrated from a consideration of the following examples.

EXAMPLE 1-15

- 5 The following formulations were prepared in accordance with the process parameters discussed above. The individual formulations of the frappés and the bob syrups, as well as the cook temperatures at which the bob syrup was cooked, are set forth serially in tabular form, below.



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TABLE I - FRAPPE COMPOSITIONS

<u>EXAMPLE NO.</u>	<u>INGREDIENT</u>	<u>% BY WEIGHT OF FRAPPE</u>
1	Egg Albumen	5.8
	Fine Granular Sugar	21.5
	Water	21.5
	Antacid*	51.2
2	Egg Albumen	5.8
	Fine Granular Sugar	21.5
	Water	21.5
	Calcium Carbonate	51.2
3-5	Egg Albumen	1.3
	Corn Syrup.	28.6
	Liquid Sugar.	37.2
	Antacid**	32.2
	Titanium Dioxide	.54
6-10	Egg Albumen	1.28
	Corn Syrup	32.70
	Invert Sugar	33.24
	Antacid**	32.25
	Titanium Dioxide	.54
11	Egg Albumen	1.23
	Corn Syrup	62.0
	Water	44.18
	Antacid**	32.02
	Titanium Dioxide	.57

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TABLE I - FRAPPE COMPOSITIONS
(continued)

<u>EXAMPLE NO.</u>	<u>INGREDIENT</u>	<u>% BY WEIGHT OF FRAPPE</u>
12	Egg Albumen	8.75
	Corn Syrup	79.61
	Water	11.64
13	Milk Protein (Casein)	3.06
	Gelatin	3.06
	Corn Syrup	75.51
	Water	18.36
14	Egg Albumen	3.06
	Milk Protein (Casein)	3.06
	Corn Syrup	75.51
	Water	18.36
15	Egg Albumen	2.8
	Milk Protein (Casein)	2.8
	Fine Granular Sugar	20.5
	Water	20.5
	Calcium Carbonate	53.4

* Antacid mixture of hydroxymagnesium aluminum sulfate and dialuminum sodium carbonate.

** Co-dried gel of magnesium carbonate and aluminum hydroxide.



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The above frappé formulations were prepared into final products by combination with a series of syrup components. The components and their percentages, cooking temperatures of the syrup components and proportions of the frappé component to syrup
5 component are set forth in Table II, below.

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TABLE II

<u>EXAMPLE NO.</u>	<u>SYRUP COMPONENT</u>				<u>COOKING TEMPERATURE (°F)</u>	<u>COOKING VACUUM</u>
	<u>% CORN SYRUP</u>	<u>% SUGAR</u>	<u>% STARCH</u>	<u>SYRUP COMPONENT</u>		
1	47.2	52.7	3		248	---
2	46.1	52.9	3		240	---
3	75.2	24.8	3		280	---
4	57.0	42.2	3		200	---
5	57.0	42.2	3		270	---
6	65.6	34.4	3		200	---
7	75.3	24.7	3		200	---
8	70.5	29.5	3		200	10"
9	70.5	29.5	3		200	5"
10	75.3	24.7	3		200	10"
11	65.6	34.4	3		200	10"
12	53.47	46.53	3		280	10"
13	53.48	46.52	3		268	---
14	53.46	46.54	3		260	---
15	47.4	52.6	3		274	---

TABLE II
(continued)

<u>EXAMPLE NO.</u>	<u>SYRUP COMPONENT</u>	
	<u>% FRAPPE</u>	<u>% SYRUP</u>
1	25	75
2	10	02
3	38.1	61.9
4	38.1	61.9
5	38.1	61.9
6	38.2	61.8
7	38.2	61.8
8	38.2	61.8
9	38.2	61.8
10	38.2	61.8
11	38.2	61.8
12	18.4	01.6
13	17.5	02.5
14	18.4	01.6
15	26.5	73.5

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This invention may be embodied in other forms or carried out in other ways without departing from the spirit or essential characteristics thereof. The present invention is therefore to be considered as in all respects illustrative and not re-
5 strictive, the scope of the invention being indicated by the appended claims, and all changes which come within the meaning and range of equivalency are intended to be embraced therein.

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CLAIMS:

1. A chewable comestible product comprising:
from 10% to 35% by weight of a frappé
component having a density of at least 1.0,
5 and

a syrup component including corn
syrup and at least one material selected
from sugar, starch, water and mixtures thereof,
the syrup component comprising at least
10 the majority of the remainder of the product.

2. A product according to Claim 1,
wherein the frappé component comprises:
at least one whipping agent present
in an amount of from 1.0% to 12% by weight
15 of the frappé component:

corn syrup in an amount of up to
92% by weight of the frappé component;
sugar in an amount of up to 55%
by weight of the frappé component; and
20 water in an amount of from 4% to
45% by weight of the frappé component.

3. A product according to Claim 1 or
2, and further including an antacid compound
in an amount of up to 20% by weight of the
25 product.

4. A product according to Claim 3,
wherein the frappé comprises:
at least one whipping agent in an
amount of from 1.0% to 9% by weight of the
30 frappé component;

corn syrup in an amount of up to
80% by weight of the frappé component;
sugar in an amount of up to 40% by
weight of the frappé component;
35 water in an amount of from 4% to
25% by weight of the frappé component; and
an antacid compound present in an amount

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of from 30 to 55% by weight of the frappé component.

5 5. A product according to Claim 3 or
4, wherein the antacid is selected from
hydroxymagnesium aluminium sulphate; dialuminium
sodium carbonate; calcium carbonate; sodium
bicarbonate; aluminium hydroxide, magnesium
hydroxide, magnesium carbonate, a co-dried
gel of magnesium carbonate and aluminium
10 hydroxide; and mixtures thereof.

6. A product according to Claim 3,
4 or 5, wherein the antacid comprises a
co-dried gel of magnesium carbonate and
aluminium hydroxide.

15 7. A product according to Claim 3,4,
5 or 6, wherein the antacid compound has
a particle size ranging from 1.0 to 1.5
microns.

20 8. A product according to Claim 2 or
to any one of Claims 3 to 7 when appendant
to Claim 2, wherein the whipping agent is
selected from egg albumen, gelatin, milk
protein, vegetable protein, and mixtures
thereof.

25 9. A product according to Claim 2 or
to any one of Claims 3 to 8 when appendant
to Claim 2, wherein the sugar is selected
from invert sugar, liquid sugar, fine granulated
sugar, and mixtures thereof.

30 10. A product according to any preceding
claim, wherein the frappé component possesses
a density ranging from 1.0 to 1.6.

35 11. A product according to any preceding
claim, wherein the finally prepared product
possesses a density ranging from 1.1 to
1.6.

12. A product according to any preceding

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claim, which further includes at least one material selected from colourants, flavouring, oils, preservatives, medicaments, and mixtures thereof.

5 13. A process for producing a chewable comestible product according to any one of Claims 1 to 12, which process comprises:

(A) preparing a frappé component having a density of at least 1.0;

10 (B) preparing a syrup component comprising corn syrup and at least one material selected from sugar, water, starch, and mixtures thereof;

(C) slowly adding the syrup component to the frappé component under agitation and at an elevated temperature of at least 79.4°C (175°F);

15 (D) mixing the frappé component and the syrup component at a temperature of at least 76.6°C (170°F);

(E) cooling and kneading the mixture of Step D to a temperature of no higher than 54°C (130°F); and

20 (F) forming the cooled mixture into the comestible product.

14. A process according to Claim 13, wherein the ingredients of the frappé component are mixed for a period of time sufficient to form a hydrated mixture.

15. A process according to Claim 14, wherein the hydrated mixture is further agitated and brought to a temperature of approximately 98.8°C (210°F).

30 16. A process according to Claim 13, 14 or 15, wherein, when an antacid is present, all of the ingredients of the frappé component excepting the antacid are combined into an initial mixture under agitation and heat, and the antacid is
35 thereafter added to the initial mixture.

17. A process according to any one of Claims 13 to 17, wherein the syrup component comprises

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a mixture of corn syrup, sugar and water, that is prepared by heating to a temperature of from 115°C to 138°C (240°F to 280°F).

5 18. A process according to any one of Claims 13 to 18, wherein the syrup component is added to the frappé component at a temperature of from 90°C to 93°C (195°F to 200°F).

10 19. A process according to Claim 18, wherein the syrup component and the frappé component are agitated after the addition for a period of time sufficient for the temperature of the resulting mixture to drop to approximately 87°C (190°F).

15 20. A process according to any one of Claims 13 to 18 wherein, during the mixing of Step D, there is added to the Step D mixture, one or more material selected from animal and vegetable fats, and oils, derivatives thereof, preservatives, and mixtures thereof.

20 21. A process according to Claim 20, wherein said material is added in an amount of up to 7.0% by weight of the comestible product.

25 22. A process according to Claim 20 or 21, wherein the mixture is thereafter agitated until the temperature thereof drops to the range from 85°C to 83°C (185°F to 180°F), at least one flavouring agent is then added thereto, and the mixture is thereafter further agitated until the temperature thereof drops to approximately 76.5°C (170°F).

30 23. A process according to Claim 20, 21 or 22, wherein the mixture is thereafter agitated for at least 7 minutes.

35 24. A process according to any one of Claims 13 to 23, wherein the mixture is kneaded and cooled to a temperature of from 43°C to 47°C (110°F to 117°F).

25. A process according to any one of Claims 13 to 24, wherein the forming of Step F is effected

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by cold forming at a temperature below 43°C (110°F).

26. A process according to any one of Claims 13 to 25, wherein, in Step F, the mixture is extruded and cut into discrete shapes.

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54 A chewable comestible product and process for its production.

57 A chewable comestible product is disclosed which comprises a frappe component having a density of at least 1.0, and a syrup component including corn syrup and one or more of sugar, starch and water. An antacid is optionally included and may preferably be incorporated into the frappe component. A related process for producing the comestible product is also disclosed, which includes the processing of the product of the invention by cold processing techniques. In the instance where the product includes an antacid, metallic user aftertaste is absent.

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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Y	US-A-3 586 513 (H.E. HORN) * Example 4, table 7; example 5, table 8, trial 1; column 5, lines 24-60; column 4, lines 4-11; column 5, line 69 - column 6, line 13 *	1,2,8- 12,14, 15,17- 25	A 23 G 3/00 A 23 G 3/02
X		1,11, 13	
Y	US-A-3 687 690 (C.O. MOORE) * Claim 1; example 6; column 9, lines 69-70, 71-74; column 10, lines 36-38; column 3, example 2 and lines 27-31; example 3; column 6, line 74 - column 7, line 36 *	1,3,5, 13,16, 26	TECHNICAL FIELDS SEARCHED (Int. Cl. 3) A 23 G
Y	US-A-2 522 050 (J. LENDERINK) * Claim 1; examples 1-3; column 1, paragraph 1; column 3, lines 24-28, 35-43, 54-58, 59-65 *	3,5,16	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28-02-1984	Examiner GUYON R.H.

CATEGORY OF CITED DOCUMENTS

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Y	JOURN. AMER. OIL CHEM., vol. 56, no. 3, March 1979, pages 350-352 J.W. MANSVELT: "Technical application of protein whipping agents in sugar confectionery" * Page 352, column 1, paragraphs 2-5 *	1,10, 11	
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A	US-A-2 847 311 (A.J. DOUMAK et al.)		
A	GB-A-2 000 673 (C.O. MOORE)		
A	US-A-4 251 561 (R.J. GAJEWSKI)		
A	US-A-2 588 419 (H.E. SEVALL et al.)		TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28-02-1984	Examiner GUYON R.H.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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